society for social responsibility in science

# SSRS Newsletter

No. 104 APRIL, 1961

## Let Them Eat Lab Chow

Some comments I made several months ago plus a letter from Walter Gormly about dietary implications of social responsibility of scientists elicited a letter from Dr. Miriam Brush. This in turn led to a rebuttal by Walter Gormly. The letters from Walter Gormly emphasized a point of view which this editor shares; namely if we are serious about the name of our Society, we had better express a concern for the Social Responsibility of Scientists in many areas rather than being concerned only with military applications of scientific knowledge.

One area of life, in which all of us must in some fashion or another act, is that of diet and nutrition. Now with the exception of Mrs. Brush there are few of us who are Ph.D.s (or even specialists) in the area of nutrition. And yet we must think about nutrition and act, be it wisely or foolishly, in choosing our diet. This problem is analogous to that of the use of nuclear weapons which everyone must accept or reject whether they be nuclear physicists or not. It would seem to this editor that one advantage of a group or society such as ours is that it enables easier discussion because we start with a more homogeneous background than the population as a whole. With this apology I'd like to share with you some of my inexpert feelings on the subject of nutrition.

Many of our ideas about food and food requirements come from experiments with laboratory animals, particularity with rats. Others come from experiments with humans and may involve objective observations of physical differences caused by different diets or subjective feelings about being tired or lacking drive. The latter type are prone to error and hard to control.

Even the most objective test of the nutritional needs of a rat can easily be misinterpreted and misapplied. One of the most common types of errors which this editor has encountered are those which ignore the concentrations or the relative amounts. While the animal body can adjust to quite wide changes in the amount of certain substances included in the diet, almost anything becomes lethal at sufficiently high levels. Thus, for example, a deficiency of vitamin A leads to symptoms such as night blindness and reduced resistance to infection. A definite amount of vitamin A in the diet is necessary for a healthy rat or human. But a one hundred fold excess of vitamin A, although a small amount of food in comparison to the total diet, is sometimes fatal to the one eating it. Likewise, small, trace amounts of copper ions are necessary for plant and animal life. Biochemically, the copper ions form part of certain enzyme systems found in the living organism. But too high a dose of copper ions can easily be used to kill both plants and animals. Although not a food, oxygen is also taken in by the animal from its environment. Oxygen is responsible for death either if it is lacking in the atmosphere we breathe, or if (under excess pressure), it is concentrated about thirty-fold. Still other substances such as fluoride ions are also poisonous in excess quantities, but lead to undesired effects, (such as a higher rate of the formation of dental caries) if the intake is too low.

On the basis of numerous experiments on rats and other animals, prepared, dried foods have been produced which supply all the needs of the animal. These are often referred to as laboratory chow. Such widely divergent types as dogs and guppies can live quite well on lab chow with perhaps one or two other items added. Guinea pigs need lettuce as well as the dried chow.

There is nothing to indicate that humans might not also be healthiest if fed only laboratory chow and water, if only they could be persuaded to like it. Unfortunately our emotions also affect our health. Most people, to say nothing of household pets, rebel against having the same food day after day. (How foolish we are not to accept this just like good white rats!) People and cats want variety in taste and odor and texture. The makers of lab chow for humans (sold under various trade names when mixed with filler for a 900 calorie diet) have found it promotes sales to add various types of flavoring. The previous letters referred to a pamphlet entitled "Let Them Eat Hay". Now this may be well and good for a horse or for a bacterium, but for human types, I say "Let Them Eat Lab Chow". — E. A.

## Report on AAAS Meeting

(*Continued*)

The AAAS meeting was an amazing experience, repeatedly bringing to the fore the problems with which the SSRS is struggling.

As reported in an earlier Newsletter C. P. Snow (Sir Charles Snow) spoke on the challenge to science of world conditions today. In the talk he came out unequivocally for the personal responsibility of scientists for the implications of their work for society, mentioning particularly participation in the arms race. On the same day the American Association of Scientific Workers presented a panel discussion on "Obstacles to the Application of Science for human Welfare"; Dr. Miriam L. Yevick presided. C. Wright Mills who was to speak was in the hospital and his place was taken by Dr. Kline. The other speakers were Dr. Otto Nathan, Dr. Theodore Rosebury and Hon. William Meyer, Congressman from Vermont, who is by profession a forester. Nathan, who was the first speaker, denied personal responsibility and limited the responsibility of scientists to lead the citizen, but not by

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## Science for Life

More than 30,000 persons visited the "Science for Life" exhibit at the annual Schoolboys Own Exhibition in London during the Christmas holidays. The theme — Science for Life or Death — was presented through imaginative and scientifically accurate displays. "Did you have a good breakfast today?" visitors were asked by the recorded voice of Alex Comfort. "Two-thirds of the world is short of food because the research and energy which could feed hungry people are being squandered in playing soldiers." At first the ages of the boys who flocked through the stand seemed lower than expected, but they brought their parents too, and in the second week science masters brought organized parties. The press afforded good coverage, and a permanent scientific exhibition in Paris wants details. The scientific director was Jack Mongar, Ph.D. No punches were pulled, and the boys were challenged thus: "Getting science out of the hands of those who are misusing it, and back on the side of man, is the biggest adventure of all time."

## Conference on World D and D

The Seventh National Conference on World Disarmament and Development is to be held April 10 - 11 at the Statler-Hilton in Washington, D. C. The SSRS is one among many sponsoring organizations, and one of our members, William Davidon of Argonne National Laboratory, speaks on "Viewpoints on Stabilized Deterrence." Also on the program are Philip Noel-Baker, Norman Thomas, Raymond Wilson, Kenneth Boulding, Edmund Gullion, Jay Orear, Hubert Humphrey and Victor Reuther. *Newsletter* readers in the Philadelphia-Baltimore-Washington area will receive a detailed program; we have room here only to mention a few of the round table sessions: Economics of World Disarmament; World Development in Relation to World Disarmament; Fort Detrick — An Example of a Conversion Opportunity; Peaceful Uses of Atomic Energy.

## AAAS Meeting

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personal example. He said that scientists are generally people of great influence and they must use their prestige. In his further statements he expressed in the strongest possible terms political views with which probably many of our colleagues would not agree.

Rosebury spoke about the crisis in medicine as an obstacle to the application of science to human welfare.

Kline feels that ignorance is the greatest obstacle to the application of science to human welfare and distinguishes between long term and short term ignorance. Kline agrees to the concept of individual responsibility but in addition he feels very strongly that scientists must make known what the results of their work are.

Meyer reminds us that we do not always know what is the absolute truth in science. Not surprisingly in view of his background he urges scientists to enter the field of politics, as "tithing" of lives of scientists: similar to giving part of one's income to the church one should give part of one's time to political life.

The AAAS Committee on Science in the Promotion of Human Welfare under the chairmanship of Barry Commoner arranged for one symposium and two open hearings.

The symposium, "Psychological and Sociological Implications of Nuclear Arms" was chaired by Harold Lief and comprised four speakers.

Dr. Ralph P. Lapp spoke on the nature of current weapons systems bringing in succinct form the dismal information known from the Bulletin of Atomic Scientists and a number of similar publications. Some of the figures which he mentioned seem worth repeating: the Hiroshima type bomb has the explosive strength of two tons of TNT per pound of warhead, while today's bombs have an explosive force of two thousand tons of TNT per pound of warhead. He stresses that this is per pound of total weight, not of the active material alone.

Missiles which the Polaris type submarine can carry have an explosive strength of 0.5 megatons while a B-52 can carry weapons with an explosive strength of 45 megatons of TNT. In order to understand the pressure of the military for more testing Lapp says that the yield probably can be doubled or trebled by additional tests.

He estimates the present stockpile as the equivalent of 50,000 Hiroshima bombs and believes that the stockpile will be increased in the next six years by 30,000 bombs.

The next speaker was Kenneth Boulding who early in his talk raised the question "What is the purpose of solving a problem (National Defense) which has no answer?" The topic of his talk was disarmament as a bargaining problem. After explaining in concise terms what bargaining means he mentions the three obstacles to bargaining with which he wants to deal: ignorance; the difficulty of negotiation (which in common speech is often wrongly called "bargaining" and which would better be called "haggling"). The third obstacle lies in the requests for compensation. To explain this term one has to consider Boulding's definition of bargaining which implies moving from one state A where we are now to a new state B where all parties are better off. However while the state A is well defined one can conceive of several states B-1, B-2, etc., which are differentiated by the gains offered to the several parties. For example one party may gain more by the solution B-1 while the other may gain more by the solution B-2. True bargaining exists only if agreement on the part of all is voluntary. Now it is conceivable that one can not move directly from state A to state B but there is a state C in which one party is better off and the other worse off. Then the system can move from state C to state B in which both parties are better off than before, and the party which is worse off when in state C gets through compensation an indemnity. Boulding says that one of the greatest difficulties in the disarmament bargain is that the major parties are not really represented at the table because, as he sees it, the great conflict today is between the armed forces of the world on one side and the civilian populations of the world on the other. The latter are not organized and there is no way of conducting the bargaining amongst them. Boulding ended by pointing out that one can conceive of disarmament by unilateral action which may under certain circumstances lead to a "Disarmament Race." — V. P.

(*Continued in our next issue*)

## Council Notes

As reported briefly previously, the American Legion decided to appeal the granting of the charter. Our attorney, Mr. Sidney T. Cadwallader, has very graciously offered his services free for the appeal procedure which is pending before the Pennsylvania Supreme Court. Still there remain printing costs. We hope to obtain special grants for this purpose from several organizations, so as to minimize the drain on the SSRS treasury. Moreover, the Philadelphia Civil Liberties Union has stated that they will submit a brief as friend of the court.

Immediately after we were granted our charter, we applied for tax-exempt status; this does not mean so much that we are tax-exempt (we have no profit anyhow), but rather that contributions to SSRS would be tax exempt. The procedure by which this status is granted is always lengthy. But in the meantime, the Council is preparing a fund-raising drive to get under way as soon as the tax-exempt status is granted. This involves both planning whom to approach and preparation of a letter of solicitation, which will be in part mailed and in part submitted to prospective donors personally. This requires long-range planning on the part of SSRS, and the Council has undertaken this so far in two all-day meetings. It is too early to disclose the several projects under consideration, but it is encouraging to see how much work we see before us provided we have the funds to do it.

Earle Warner, former head of the

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This Newsletter is published monthly by the Society for Social Responsibility in Science, an organization of scientists and engineers whose purpose is to induce scientists to recognize a personal responsibility for the anticipated consequences to society of their work and to exercise their profession always for the benefit of humanity.

The Society for Social Responsibility in Science was founded in 1949. It has members in 19 countries and the Newsletter is circulated in 45 countries.

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Send all correspondence, including letters to the editor, to the Managing Editor, who is:
Franklin Miller, Jr.
Gambier, Ohio

## How to Join SSRS

Write to SSRS, Gambier, Ohio, for descriptive leaflet and membership application form.

## Defense in the Nuclear Age

*by Stephen King-Hall. Fellowship Publications, Nyack, N. Y., 234 pp., $2.75. A book review by Carl Barus.*

Commander Sir Stephen King-Hall served in the British Navy in both world wars. He is a well-known military strategist and commentator and a former Member of Parliament. "I was brought up to believe" he says, "that in the words of the Preamble to the Articles of War: 'On the British Navy, under the good providence of God, the wealth, safety and strength of the Kingdom chiefly depend.'" The Commander is not a pacifist. In the Foreword he sets his objective: "The object of the strategy outlined in this volume is not only to defend our way of life but to destroy Communism".

And what is the strategy he proceeds to outline? In a word: *unilateral disarmament and nonviolent action.* In this strategy he finds the only realistic and practical hope of achieving his stated objective. One suspects that he envies the moral conviction of the pacifist: "If . . . morality and expediency . . . find themselves on the same platform", he sees "no harm". But he is at pains to point out that he speaks here for expediency.

The first half of the book is largely devoted to a carefully reasoned statement of the nuclear and political realities confronting us and to a critical evaluation of the dubious premises and faulty logic upon which the official Western reaction to this situation has been based. What we wish to defend, says the author, is "a combination of the material and the spiritual." Almost by definition, the spiritual qualities — the ideas and ideals of a free society — can be defeated only by changing the minds of, or by killing off, all those who hold such beliefs. As for the defense of the material side of British civilization, including life itself as a material quality to be defended, the author calls attention to current official policy as stated in 1957 by Defense Minister Sandys: "'. . . we have taken a bold step in deciding not to do the impossible. We decided not to defend the whole country but to defend only our bomber bases'."

In Parts Two and Three of his book, King-Hall expounds his own policy of defense and, as he says, attack. First of all Britain should unilaterally abandon those weapons which would destroy "what we are trying to defend". In the event of such unilateral nuclear disarmament, British conventional weapons would be hopelessly outclassed by the nuclear weapons of an enemy. Moreover the entire West is vastly inferior to the USSR in conventional weapons. King-Hall accepts the logical consequence of this argument: conventional weapons must be abandoned too. But he advocates neither neutralism nor surrender. He would adopt an aggressive policy of political-economic-psychological warfare. "The object of war is to change the enemy's mind". Military action is only *one* form of war, and a form that must be ruled out in the nuclear age. He envisions a European Treaty Organization (ETO) for the purposes of carrying on the ideological war, strengthening democratic ideals, and preparing for nonviolent resistance in the event of enemy occupation.

The American edition of the book concludes with "A Chapter for Americans", in which King-Hall reasons that the arguments he has presented with reference to the United Kingdom apply equally well to the United States. He recognizes, of course, that the U. S. is even less likely to adopt his proposals than is Britain.

One might wish that Commander King-Hall had not so carefully avoided citing morality as a sound justification for the policies he advocates. Nevertheless, one cannot but rejoice that a man of his public stature has so boldly said what needs to be said. Perhaps, as he suggests, and in the light of recent events on the English political scene, England may yet regain her world leadership by showing us the way out of our nuclear insanity.

## SSRS Library

The following recent additions to the Library may be borrowed for two weeks by writing to Jean Stangle, 34 Third St., Batavia, Ohio.

*The Technical Problems of Arms Control,* by Bernard Feld et al. 30 pp. 50¢. A report to the Committee on Technical Problems of Arms Limitation, American Academy of Arts and Sciences. New York, Institute for International Order. Outlines technical problems in development of a system for arms limitation and control, and identifies areas for further study to aid in policy decisions and encourage governments toward arms control. A valuable brief survey. Includes bibliography on arms control.

*Causes of World War Three,* by C. Wright Mills, New York, Ballantine, 1960. 187 pp. 50¢. An angry statement of opposition to "crackpot realism" which leads toward war. Sociologist Mills follows with "guidelines" for American policy and for intellectuals.

*A Way of Survival,* by Arthur W. Munk. New York, Bookman Associates 1954. 164 pp. Sketches philosophical attitudes dangerous to or conducive to peace, then offers eight steps toward peace. The "steps" are not revolutionary — they've been stated elsewhere as the author says; the thoughtful first sections are especially good.

*Arms and Insecurity,* by Lewis F. Richardson, Chicago, Quadrangle Books, 1960. 328 pp. $10.00. Pioneering work in quantitative analysis of political science. Gives the "first systematic study of interrelation of the causes of war in a form that permits evaluation of their relative importance." Requires a knowledge of calculus and differential equations.

*Statistics of Deadly Quarrels,* by Lewis F. Richardson, Chicago, Quadrangle Books, 1960. 412 pp. $12.50. Companion to the above volume, this book studies specific conflicts between 1820 and 1949, examining historical data mathematically.

See also the booklist in the March, 1961 issue of the Newsletter.

## Council Notes

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Physics Department of the University of Arizona at Tucson, Arizona, now retired and living in Nyack, N. Y., is willing to give some time to SSRS. The plan is to have him speak on college campuses. Presently he is exploring this by seeking some speaking engagements in near-by colleges.

Mal Benjamin has been studying for awhile our bookkeeping procedures and the operation of the treasurer's office and submitted to the Council several suggestions involving significant simplifications of the operation of the treasurer's office, which are being put into effect immediately and which should lighten the burden of future treasurers. In addition, he finds time to be responsible for the production of literature, and he reported on plans for one or two additional pamphlets, hopefully to be published soon.

## Flash — Legion Appeal Denied

As we go to press, word is received that the Pennsylvania Supreme Court has quashed the appeal of the American Legion. This means that if the Legion still wishes to oppose incorporation of SSRS, it must appeal to the U. S. Supreme Court. We do not yet know if such a step is contemplated by the Legion.

## Letters

I am prompted to write this note by the space devoted in a recent Newsletter to the problem of an international auxiliary language, featuring arguments as to which might be the best to adopt. Not to take the time to detail the obvious need in our world for some such language, I would make two points.

With minor exceptions, all such languages which have been seriously supported are based on the Western European ones. It is naive to think that such a base would be adequate in the world of today, and even more so to suppose that there is any chance of a language so based being adopted by, say, Asian scientists.

Each new (or old) proposed auxiliary language claims a simple grammar. Yet modern linguistics so little understands what this means (aside from the cultural factors which dictate that a language, especially if historically related to our own, or from a familiar culture, is always "easier" for us), that it has been able to set up no scale of ascending complicatedness of grammar on which linguists can agree. And what proposals we can make sense of for such a scale usually suggest that the grammar of European languages is probably on the difficult end.

The idea of an auxiliary language as a means of lessening communication difficulties is an appealing one, and rightly so. But I know of none which appears remotely adequate, and so consider time spent in arguing the relative merits of one or the other ill spent, especially in a publication such as the SSRS Newsletter, which has much more important things to discuss.

KARL V. TEETER, Cambridge, Mass.

The Oregon Supreme Court (by a 4-3 vote) recently upheld my suit against the Oregon State Board of Health and ordered that Board to open its records of determinations of radioactivity to inspection. This marked the end of nearly three years of litigation that was unsuccessful in the lower courts. The benefits were not confined to making this information available to the public. During the course of the litigation there was quite a lot of publicity, much of it good, that helped to bring public attention to the dangers of radiation, particularly fallout radiation. Since the attorney, Reuben Lenske, served without fee, as a matter of public service, and since the judgment included repayment of all costs and fees, this was accomplished without monetary cost.

ALAN M. MacEWAN
1024 Palm Road
Tucson, Arizona

I am reading with appreciation Victor Paschkis' address to AAAS. (I had already read Sir Charles Snow's essay printed in Science, together with the several discussions.) I am moved to write out some very strong convictions that I hold in regard to morality.

Morality is the quality of action that is approved of by the culture in which one is embedded. Every scientist knows that cultures and their mores contain some illogic. No scientist can be sure that he is aware of all the pieces of illogic. However it is possible to be logical in talking about morality. It is not possible to be entirely logical about adherence to morality.

I would like to distinguish virtue from morality. Virtue is the attribute of actions that oneself approves of. In untutored minds it derives pretty directly from morality. It accomplishes nothing for my purpose to point out the part that personal timidity or personal courage may perform in the development of virtue. When well developed, virtue ceases to lean on public opinion, is no longer tied to morality's apron strings.

Some sturdy personalities guide their actions quite faithfully on the decisions generated by personal conception of virtue. In saintly characters it is more powerful than the will to live. It is regularly seen to emerge as stronger than the projected will for other persons to live. This is obvious in romantic literature where adherence to an ideal is lauded though it lead to physical trials or even disaster.

I think that SSRS is often thinking of the scientist's virtue.

I think scientists are schooled in logic — or should be. Logically it is incompetent to characterize a weapon system as "humane". War, logically prosecuted, is inhumane, irrespective of the weapons. The competent adjective is rather "effective".

Logical action toward a virtuous purpose is the ideal to be striven for by a person who is a scientist. My logic reads as follows:

War has come to the place where it threatens to do the victor more injury than he could expect to suffer were the provocation not abated. If one proudly plans to preserve the nation and its national self respect, this is a good which the 20,000,000 survivors buy at too high a price, when the price is 150 million dead. I think it is foolish of those who will die to make plans for it, and I think it is immoral of those who will survive.

The moral question therefore is simply, "what is the surest way to forestall war?" This is still pertinent, even though I don't know the answer. It is not virtuous to impede those who are doing what they believe is best for preventing the war. It is virtuous to try to find a better way and to persuade others to follow that.

R. R. NEWELL, M.D.
San Francisco, Calif.

A program called "Conscience in Modern Medicine" held at Dartmouth College and broadcast over Station WRVR-FM in New York on January 29, 1961, his excellency, Mahomed Ali C. Chagla, ambassador of India to the United States stated in forceful terms his convictions that the worst problem facing his country, as well as other countries like China and the world at large, is expanding population. He feels this relentless progress of increasing population is canceling out the efforts of countries like India to improve the way of life of the people while preserving the freedom of the individual. Other nations, watching this futile game, will turn to the coercive methods of Russia and China. He appealed to the United States to devote a significant part of its health effort to reducing the birth rate in a practical manner.

Aldous Huxley analyzed the problem further. He discussed world wide and regional rates of population increases. The world population at the time of Christ was probably 250 million. It doubled in 1600 years. On the other hand, the current world population, 3000 million, can be expected to double in the next 40 years. The overall rate of increase is 1.8% per year, but in Western Europe the rate is near 1%, in the United States about 1.7%, and in Mexico and parts of Asia and Africa it is over 2%. The reason for the increase is the fall in death rate produced by new public health methods, while the birth rate in most areas is unchanged. Huxley pointed out the contrast in applying methods to reduce death rates and birth rates. Neolithic Indians on the Matto Grosso, although they wear no clothes, all have vaccination marks, and smallpox can be eliminated among them. But even if an effective oral contraceptive "pill" were available, its effective use would require education and awareness and in many cases the overcoming of philosophic and religious objections in many millions of individuals. Huxley urged the continued awareness of scientists, government leaders, and thinking people everywhere, of this urgent problem.

None of these ideas or facts is entirely new. But it is significant that a medical school can induce an official representative of a large country to express himself in these terms at a public meeting which then is broadcast on the radio, even though on a small station.

THOMAS F. LEO, M.D.
Jamaica, N. Y.

## Occupation Division

The positions listed in the last few Newsletters have been filled. We print ads for any scientist or engineer who has job problems related to conscience or to the use of his professional skill for constructive purposes.

All correspondence should be directed to the Occupation Division Chairman, who is M. Jane Oesterling, Women's Medical College, Philadelphia 29, Penna.

This issue edited by Franklin Miller

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